

Remarks

Claims 1-7 and 9-24 are pending herein. By this Amendment, claim 8 has been canceled, and claim 1 has been amended.

Specifically, claim 1 has been amended to include the contents of canceled claim 8. Applicants submit that this Amendment does not raise new issues. Therefore, Applicants respectfully request that the Amendment be entered.

In the Office Action, claims 1-12 and 19-21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,922,192 to Zimmermann et al. (“Zimmermann ‘192”) in view of U.S. Patent No. 5,656,150 to Reed et al. (“Reed”); and claims 13-18 and 22-24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Zimmermann ‘192 in view of Reed and further in view of U.S. Patent No. 5,849,176 to Zimmermann et al. (“Zimmermann ‘176”) and U.S. Patent No. 4,410,418 to Kukes et al. (“Kukes”).

In view of the amendments and remarks herein, Applicants respectfully request reconsideration and withdrawal of the rejections set forth in the Office Action.

I. Rejection of Claims 1-12 and 19-21

Claims 1-12 and 19-21 are rejected under §103(a) as being unpatentable over Zimmermann ‘192 in view of Reed. Zimmermann ‘192 and Reed are cited for reasons of record.

By this Amendment, claim 1 has been amended to include the contents of canceled claim 8. Thus, amended claim 1 recites that the at least one non-silicon-containing sulphur compound is carbon disulphide or a compound of formula $R^1-S_x-R^2$ wherein R^1 and R^2 , which are identical or different, each represents a hydrogen atom or a hydrocarbonaceous group and x is a number equal to or greater than 1. Claims 2-7, 9-12 and 19-21 depend directly or indirectly upon claim 1.

For the reasons given below, Applicants respectfully submit that instant claim 1-7, 9-12 and 19-21 would not have been obvious over Zimmermann ‘192 in view of Reed.

According to the Office Action, it would have been obvious to modify the process disclosed in Zimmermann '192 to use steam as suggested by Reed because of steam's easy availability, particularly in steam cracking units.

As acknowledged in the Office Action, Zimmermann '192 explores the possibility of using steam as a carrier gas in Example 6 therein and concludes that steam is not suitable for long suppression of coking on materials pretreated with trimethylsilylmercaptan. Applicants submit that Example 6 teaches those skilled in the art that whether steam is suitable for long-lasting suppression of coking on materials pretreated with a particular compound(s) depends at least in part on what the particular compound(s) is. Applicants further submit that because of Example 6's teaching, one skilled in the art, reviewing Reed to determine whether steam can be used in the Zimmermann '192 process, would not be motivated by Reed to use steam with compounds other than those with which steam is actually used in Reed. Reed does not teach or suggest the use of the sulphur compound recited in instant claim 1. All of the sulphur-containing compounds disclosed in Reed also contain tin. Thus, Applicants respectfully submit that because Reed does not teach the use of steam with a sulphur compound within the scope of instant claim 1, one skilled in the art would not have been motivated by Reed to use steam with such compound. Zimmermann '192 also does not teach or suggest the use of steam with a sulphur compound within the scope of instant claim 1. Thus, Zimmermann '192 in view of Reed does not teach or suggest the use of steam with a sulphur compound within the scope of instant claim 1.

The undersigned is informed that not only example 6 of Zimmermann must be considered which corresponds to Figure 7; it shows clearly coking rates obtained with the same anti-coking additive (trimethylsilylmethylmercaptan) but mixed with various gases:

- CH₄/H₂
- H₂
- Steam
- CH₄
- H₂

Figure 7 shows the coking rate being high when the gas is steam, so the skilled man in the art will conclude that the presence of steam is not advantageous for the anti-coking effect.

When considering example 5, corresponding to Figure 6 which must be compared with example 4 corresponding to Figure 5, steam as sole carrier gas is shown not good for the anti-coking effect; the teaching of Zimmermann is that dry inert gases have a better effect than steam.

The general teaching of Reed is that the antifoulant composition can be carried out either alone (directly admixed with the hydrocarbon feed (col. 6, 1.51 ...)) or admixed with the steam; but in this case the antifoulant composition is preferably with an inert diluent prior to its introduction into or admixing with the steam (col. 6; 1.23-32).

Figure 5, (example 4) of Zimmermann corresponds to this preference: firstly admixed with steam.

So, the combination of Zimmermann and of Reed does not encourage the skilled man in the art to replace an inert gas by steam (worse results: see Figure 6 of Zimmermann).

Therefore, for at least the foregoing reasons, Applicants respectfully submit that claims 1-7, 9-12 and 19-21 would not have been obvious over Zimmermann '192 in view of Reed.

II. Rejection of Claims 13-18 and 22-24

Claims 13-18 and 22-24 are rejected under §103(a) as being unpatentable over Zimmermann '192 in view of Reed and further in view of Zimmermann '176 and Kukes. Zimmermann '192 and '176, Reed and Kukes are cited for reasons of record.

Claims 13-18 and 22-24 depend directly or indirectly upon claim 1. Thus, Applicants respectfully submit that claims 13-18 and 22-24 would not have been obvious over Zimmermann '192 in view of Reed for at least the same reason that claim 1 would not have been obvious over these references, i.e., neither Zimmermann '192 nor Reed teaches or suggests the use of steam with the particular sulphide compound recited in claim 1.

Neither Zimmermann '176 nor Kukes cure the failure of Zimmermann '192 in view of Reed to teach the process of instant claim 1. Zimmermann '176 is directed to materials that are added to the feedstock to be cracked rather than materials used in the pretreatment stage as is the

case in instant claim 1. Kukes teaches the use of steam in the cracking stage, not in the pretreatment stage.

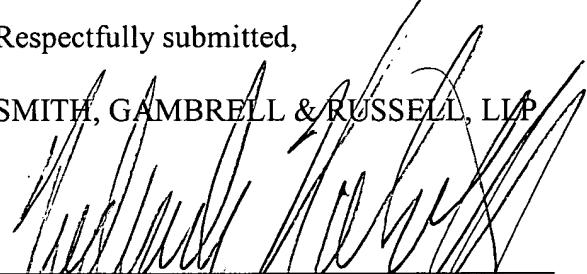
Thus, for at least the foregoing reasons, Applicants respectfully submit that claims 13-18 and 22-24 would not have been obvious over Zimmermann '192 in view of Reed and further in view of Zimmermann '176 and Kukes.

III. Conclusion

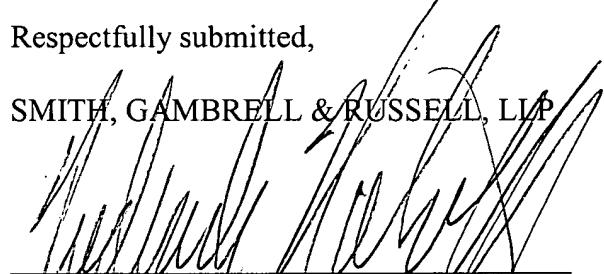
In view of the amendments and remarks herein, Applicants respectfully request that the rejections set forth in the Office Action be withdrawn that claims 1-7 and 9-24 be allowed.

If any fees are due in connection with the filing of this Amendment, such as fees under 37 C.F.R. §§ 1.16 or 1.17, please charge the fees to our Deposit Account No. 02-4300; Order No. 033808.172.

Respectfully submitted,


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Dated: December 4, 2006

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